

First Hit Fwd Refs



Generate Collection

Print

#1 write pointer including
the ~~known~~ size of
the data

L30: Entry 6 of 8

File: USPT

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DOCUMENT-IDENTIFIER: US 5974483 A

TITLE: Multiple transparent access to input peripherals

Detailed Description Text (21):

When the ring buffer is larger than a particular application program has specified, input driver 100 manipulates the ring buffer so that it appears to the application program that the ring buffer is only large enough to hold the specified number of elements. Specifically, input driver 100 arbitrarily advances the read pointer corresponding to an individual data consumer when the relationship between the read pointer and the write pointer indicates that more than n data elements are buffered for said individual data consumer, where n is the size of the ring buffer specified by the data consumer. Specifically, the input driver advances the read pointer whenever the write pointer advances ahead of the read pointer by more than n.

CLAIMS:

8. A method of buffering sequential data elements from an input stream for consumption by a plurality of data consumers, comprising the following steps:

receiving requests from the plurality of data consumers for buffers of different sizes;

allocating enough registers in a circular sequence of registers to satisfy the largest buffer size request;

cycling a write pointer through the circular sequence of registers to indicate where sequential data elements from the input stream should be written;

cycling a plurality of read pointers independently through the circular sequence of registers to indicate where data should be consumed by respectively corresponding data consumers;

advancing the read pointer corresponding to a particular data consumer when the relationship between said read pointer and the write pointer indicates that more than n data elements are buffered for said particular data consumer, where n is the size of the buffer requested by said particular data consumer.

12. A method of buffering sequential data elements from an input stream for consumption by a plurality of data consumers, comprising the following steps:

receiving requests from the plurality of data consumers for buffers of different sizes;

allocating enough registers in a circular sequence of registers to satisfy the largest buffer size request;

providing a write pointer that references one of the registers;

providing a plurality of read pointers corresponding respectively to the plurality of data consumers, wherein each read pointer references one of the registers;

in response to receiving a data element from the input stream, (a) writing the data element to the register that is referenced by the write pointer and (b) advancing the write pointer to reference a subsequent register in the circular sequence of registers;

in response to a request from a particular data consumer, (a) reading a data element from the register referenced by the read pointer corresponding to the particular data consumer and (b) advancing the read pointer to reference a subsequent register in the circular sequence of registers;

advancing the read pointer corresponding to a particular data consumer when the relationship between said read pointer and the write pointer indicates that more than n data elements are buffered for said particular data consumer, where n is the size of the buffer requested by said particular data consumer.